



# KEY CHALLENGE

Key Biscayne Citizen Scientist Project



LEARN • EXPERIENCE • PROTECT

# Introduction

The Citizen Scientist Project of the Key Biscayne Community Foundation and the Village of Key Biscayne sponsor the Key Challenge. Equally important to these sponsorships, the Challenge gratefully acknowledges the assistance of the Fairchild Tropical Botanic Garden for providing invaluable information used both to design the first Key Challenge and to make changes to improve this year's Key Challenge. Following the example of The Fairchild Challenge and its wider audience and area of concern, the Key Challenge is an island-wide initiative directed at increasing student's appreciation and knowledge of the island's natural resources. The Challenge incorporates 4 disciplines – art, writing, informatics and science. These disciplines are further broken down into individual and/or group challenges open to various grade levels.

The Challenge starts on **November 10, 2016** (registration must be completed by **November 18, 2016**) and concludes on **March 31, 2017**. Awards will be announced on **April 20, 2017**. Each individual/group challenge will be judged by grade groupings. Grades are separated by the following breakdown: ***Pre-K, Kindergarten and First grade (PK/K/1), Second and Third grades (2/3), Fourth and Fifth grades (4/5), Sixth through Eighth grades (M), Ninth and Tenth grades (H1), Eleventh and Twelfth grades (H2).***

**NEW:** This year we will add an At Home Individual category to each of these age groups. Students who are Key Biscayne residents may provide an entry even if their teacher and/or school is not participating in the Key Challenge. Only those projects marked with an asterisk (\*) can be entered in the At Home Individual category.

**NEW:** This Year's Key Challenge theme will revolve around **water**. The Citizen Science Project is proud to be the recipient of a grant from the Environmental Protection Agency for the purpose of ensuring long term health of shoreline waters of Key Biscayne. As the Village of Key Biscayne celebrates its 25th anniversary, it is important to remember that water (fresh and salt) has been critical to its development and history. We will therefore be focusing our challenges on water quality and conservation.



An underwater photograph of a mangrove forest. The water is clear and greenish, showing the intricate network of dark, woody mangrove roots extending from the surface down to a sandy and coral reef bottom. Sunlight filters through the water, creating shimmering patterns. A purple text box is overlaid on the upper portion of the image.

*Key Biscayne Citizen Scientist Project's* **KEY CHALLENGE**



## ***Collage***

(INDIVIDUALS, GROUPS, & CLASS | up to 2ft x 3ft)

Create a paper collage of a KB native water habitat, which includes at least one or more of native species of plant and one or more of native species of animals. Use whatever materials available. Include a written description (by the teacher), which describes the process of creating the collage and the lessons learned about the habitat and its inhabitants during this process.

## ***2D Depiction of Water Life\****

(INDIVIDUALS & AT HOME | up to 10in x 14in)

Create a 2-D depiction (painting, print screening, etc.) of a salt or freshwater water setting that includes some sort of plant and/or animal life which is dependent in some way on the water environment. Technique may include all types of paint and dry media (colored pencils, oil pastels, sharpies, etc.)

## ***Photograph\****

(INDIVIDUALS & AT HOME | 8in x 10in without mat)

Take a photograph (micro or macro) of an element of the natural aquatic environment of Key Biscayne (i.e. the beach, the mangroves, marine life, etc.). Include a title for the photograph as well as a short description of the location of the photo. Photographs must also be uploaded to the Key Science interactive map. Go to <http://www.keyscience.org/cs-lab/map/> and click on ***“Upload your own photos here!”***



## ***Book***

(INDIVIDUALS, GROUPS, & CLASS | max 28 pgs including cover)

Create an ABC, Counting, Colors or Pattern book using the natural resources found on Key Biscayne. The artwork and words must be student generated, but the book may be computer printed. Please try to include water-related elements in as much of the book as possible (with the understanding that it may not be possible for every single element presented).

## ***Science Project***

(INDIVIDUALS, GROUPS, & CLASS | on a presentation/science board)

Choose a fresh or saltwater (nearshore) habitat and observe and list the different plants and animals that are present in that habitat. Describe the habitat (Is it fresh or salt water? Does the have a current? Is there sand, dirt, or plants adjacent to the water?) and the different species that are there (Are they birds, fish, grass, trees, etc?). Do the animals live there or are they visiting? Present data with pictures.



## ***Collage***

(INDIVIDUALS, GROUPS, & CLASS | up to 2ft x 3ft)

Create a paper collage of a KB native water habitat, which includes a native species as well as elements representing the shelter, food, water, air and place to raise their young. Use whatever materials available. Please include a written description (by the teacher), which describes the process of creating the collage and the lessons learned about the habitat and its inhabitants during this process.

## ***2D Depiction of Water Life\****

(INDIVIDUALS & AT HOME | up to 10in x 14in)

Create a 2-D depiction (painting, print screening, etc.) of a salt or freshwater water setting that includes some sort of plant and/or animal life which is dependent in some way on the water environment. Technique may include all types of paint and dry media (colored pencils, oil pastels, sharpies, etc.)



## ***Photograph\****

(INDIVIDUALS & AT HOME | 8in x 10in without mat)

Take a photograph of an element of the natural aquatic environment of Key Biscayne (i.e. the beach, the mangroves, marine life, etc.). Include a title for the photograph as well as a short description of the location of the photo. Photographs must also be uploaded to the Key Science interactive map. Go to <http://www.keyscience.org/cs-lab/map/> and click on ***"Upload your own photos here!"***

## ***Comic Strip***

(INDIVIDUALS | up to 10in x 14in)

Create a comic strip to explain and raise awareness of the importance of water to Key Biscayne.

## ***Science Project***

(INDIVIDUALS & GROUPS | on a presentation/science board)

Choose a fresh or saltwater (nearshore) habitat and observe and list the different plants and animals that are present in that habitat. Describe the habitat (Is it fresh or salt water? Does the habitat have a current? Is there sand, dirt, or plants adjacent to the water?) and the different species that are there (Are they birds, fish, grass, trees, etc?). Describe why these plants and animals might live near or visit the water. Present data with pictures.



## ***2D Mixed Media Painting\****

(INDIVIDUALS & AT HOME | up to 10in x 14in)

Create a 2-D drawing or painting of one of Key Biscayne's natural resources that includes a water element (mangroves, beaches, oceans, etc.). Mixed Media may include all types of paint and dry media. Include a written description of the artwork which includes a comment about what is important or unique about the subject of the painting or drawing to the residents of Key Biscayne.

## ***Personal Narrative***

(INDIVIDUALS & GROUPS | various formats)

Create a personal narrative (fictional) with yourself as a person or native plant or animal which takes place in the waters of Key Biscayne. **Max 24 pages (not including the front cover).**

Alternatively, create a retelling of an oral history interview with a "Key Rat" (Long-time Key Biscayne resident) about his or her favorite water-related places on Key Biscayne and how these places have changed over time. **Can be a PPT or Prezi of 5-10 slides or a video of maximum length of 8 minutes. Entries will be submitted via Dropbox. KBCF can aid in connecting students to long-time Key residents if needed.**

## ***Public Service Announcement***

(INDIVIDUALS & GROUPS | video up to 8 minutes)

Create a PSA video which sends an environmental message for our community about the importance of water as a natural resource for Key Biscayne. **Entries will be submitted via Dropbox.**





## ***Photograph\****

(INDIVIDUALS & AT HOME | 8in x 10in without mat)

Take a photograph (micro or macro) of an element of the natural aquatic environment of Key Biscayne (i.e. the beach, the mangroves, marine life, etc.). Include a title for the photograph as well as a short description of the location of the photo and the relation of the element to the environment. Photographs must also be uploaded to the Key Science interactive map. Go to <http://www.keyscience.org/cs-lab/map/> and click on ***"Upload your own photos here!"***

## ***Science Project\****

(INDIVIDUALS, GROUPS, & AT HOME | on a presentation/science board)

Choose a fresh or saltwater (nearshore) habitat and observe and list the different plants and animals that are present in that habitat. Describe the habitat and the different species of plants and animals, including why these particular species might be present. Also describe how changes in water quality, pollution, or human development might affect these species and how they interact. Present data with pictures.



## ***Nature Guide***

(INDIVIDUALS & GROUPS | max 28 pgs including cover)

Create a nature guide for the waters of Key Biscayne which includes at least 10 native species (animals, sea grasses, corals, mangroves, etc.)

## ***Coloring Book***

(INDIVIDUALS & GROUPS | various formats)

Create a coloring book that tells a personal narrative with yourself as a person or native plant or animal which takes place in the waters of Key Biscayne. Keep in mind that this project is being made for a younger audience, to give older students a chance to teach younger students about the environment. ***Max 24 pages (not including the front cover).***

Alternatively, students may opt to create a retelling of an oral history interview with a “Key Rat” (Long-time Key Biscayne resident) about his or her favorite water-related places on Key Biscayne and how these places have changed over time. This could be a report, presentation, or a video. ***Max 5 page report (may include a few pictures), a PPT or Prezi of 8-10 slides, or a video of maximum length of 8 minutes. Entries will be submitted via Dropbox. KBCF can aid in connecting students to long-time Key residents if needed.***

## ***Future Key Biscayne Model\****

(INDIVIDUALS, GROUPS, & AT HOME | up to 2ft x 3ft)

Create a model (actual or virtual) of Key Biscayne in the future which addresses water quality and management needs that will arise. Include the impact of global changes. Dealing with water management is most important for this project, but other themes such as sea level rise can also be included.



## ***Photograph\****

(INDIVIDUALS & AT HOME | 8in x 10in without mat)

Take a photograph of an element of the natural aquatic environment of Key Biscayne (i.e. the beach, the mangroves, marine life, etc.). Include a title for the photograph as well as a short description of the location of the photo and the elements included. Photographs must also be uploaded to the Key Science interactive map. Go to <http://www.keyscience.org/cs-lab/map/> and click on ***“Upload your own photos here!”***

## ***Public Service Announcement***

(INDIVIDUALS & GROUPS | video up to 8 minutes)

Create a PSA video which sends an environmental message for our community about the importance of water as a natural resource for Key Biscayne. Include the dangers facing our waters (pollution, development, etc.) and ways in which individuals can help to reduce these problems.

***Entries will be submitted via Dropbox.***



## ***Food Web\****

(INDIVIDUALS, GROUPS, & AT HOME | up to 10in x 14in)

Create a food web photo collage of an animal native to a water habitat around Key Biscayne.

## ***Photograph\****

(INDIVIDUALS & AT HOME | 8in x 10in without mat)

Take a photograph of an element of the natural aquatic environment of Key Biscayne (i.e. the beach, the mangroves, marine life, etc.). Include a title for the photograph as well as a short description of the location of the photo. Photographs must also be uploaded to the Key Science interactive map. Go to <http://www.keyscience.org/cs-lab/map/> and click on ***“Upload your own photos here!”***

## ***Coloring Book or Illustrated Story***

(INDIVIDUALS & GROUPS | max 28 pgs including cover)

Create a story that tells a personal narrative with yourself as a person or native plant or animal which takes place in the waters of Key Biscayne. Keep in mind that this project is being made for a younger audience, to give older students a chance to teach younger students about the environment.



## ***Public Service Announcement***

(INDIVIDUALS & GROUPS | video up to 8 minutes)

Create a PSA video which sends an environmental message for our community about the importance of water as a natural resource for Key Biscayne. ***Entries will be submitted via Dropbox.***

## ***Science Report\****

(INDIVIDUALS & AT HOME | PowerPoint, Prezi , or Report)

Create PPT, Prezi, or report which describes the consequences of human activity on waters of Key Biscayne. This should include data collection and analysis; the level of detail will be left up to participants, but more detailed information will likely score higher. ***Max 7 page report (may include a few pictures), a PPT Powerpoint or Prezi (maximum 25 slides). Entries will be submitted via Dropbox.***

## ***Science Report\****

(INDIVIDUALS & AT HOME | 8-10 pages)

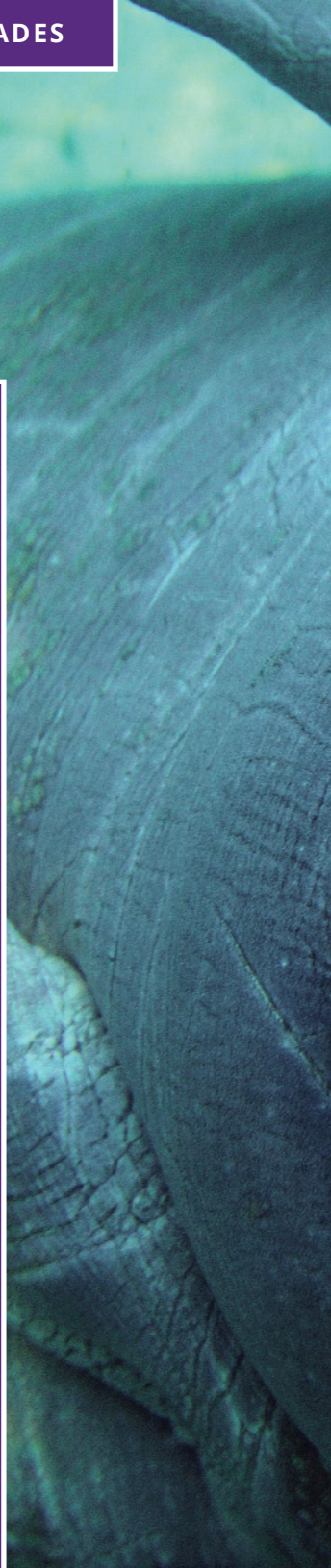
Write a report detailing a specific or general aspect of ***water quality and conservation around Key Biscayne***. The report can be broad (for example, the overall effects of human development on the shores of Key Biscayne), or more detailed (for example, how plastic pollution affects one specific species of aquatic organism).

The subject and detail-level of the report will be left to the participant to decide, however all reports should show research, data collection, and analysis.

It should loosely follow the scientific method: 1) ask a question, 2) do background research, 3) construct a hypothesis, 4) collect data and/or test hypothesis, 5) discuss the accuracy of hypothesis, and 6) draw a conclusion.

Students can either create their own experiment based on their hypothesis and collect data that they will include in their report, or they can write a research paper using data sources from other scientific literature to prove or disprove their hypothesis. All outside sources must be cited.

***As this is a more involved and detailed project, it will include a monetary award of \$200 for 1st place, \$150 for 2nd place, and \$100 for 3rd place.***



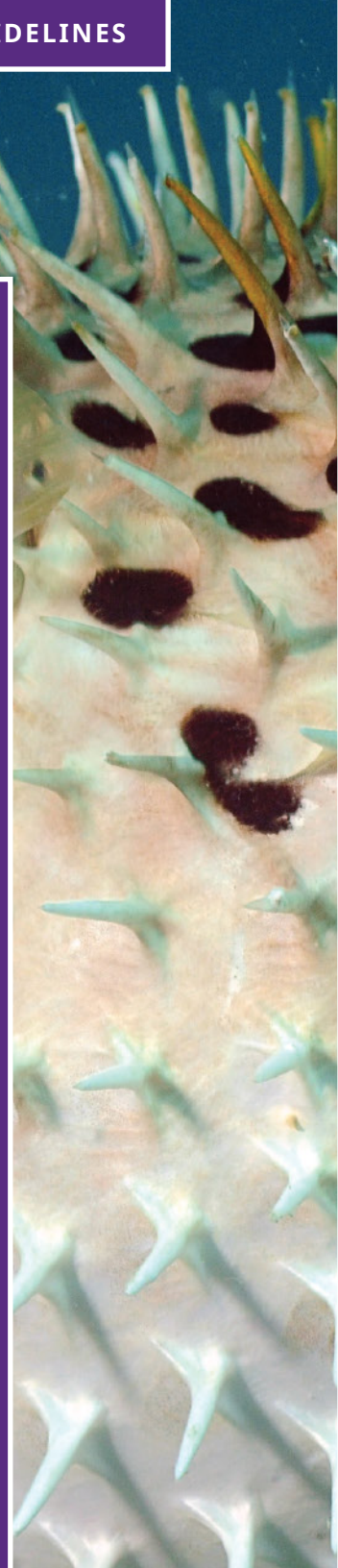


## At Home Individual

(CHOOSE ONE PROJECT PER CHILD)

Individuals *who live on Key Biscayne* but do not attend school on the Key or who attend school on the Key but whose class is not participating may still participate in the Key Challenge following these guidelines:

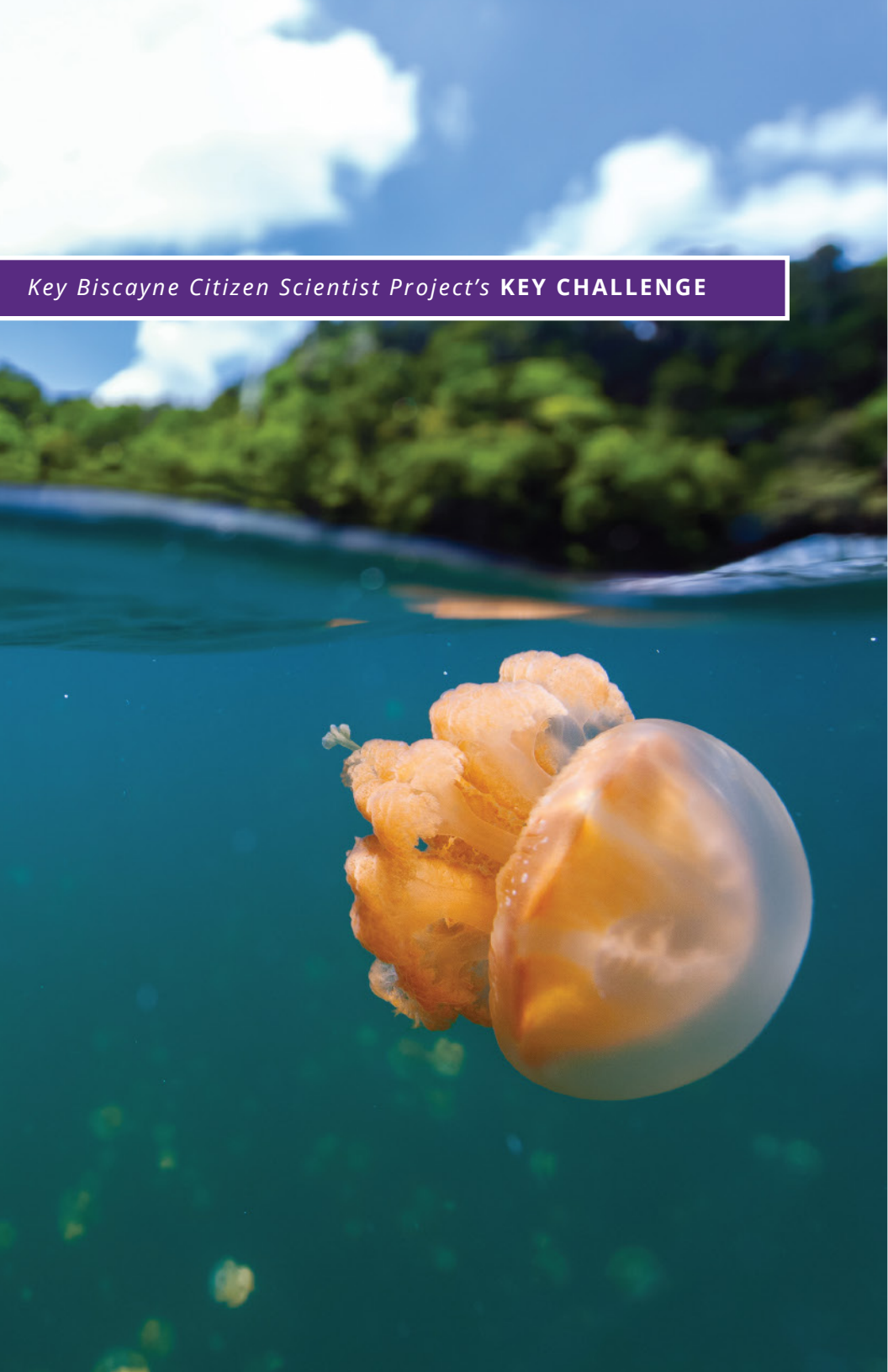
- Each child registrant may enter with one of the challenges given for their grade level category. The challenges listed above which will be allowed for the At Home Individual entries are marked with an asterisk (\*).
- The child registrant's parent/guardian may register him or her online in the At Home Individual category, or the child may register him or herself if old enough to do so (high school age).
- The child registrant will need to have their current teacher fill out and sign a form affirming their current grade level, which will be available for download on the online registration page.
- Each At Home Individual challenge entry will only be judged against other At Home Individual entries of the same grade level category.
- Parents may provide guidance, but should allow the child to do the challenge on their own as much as possible.







*Key Biscayne Citizen Scientist Project's* **KEY CHALLENGE**





# General Information

- Each school must complete a School Registration form by **November 18, 2016**.
- The Challenge starts officially on **November 10, 2016**.
- For each class, 2 entries will be accepted per challenge for judging at their grade level category. For each grade level category, 1 winner will be chosen per challenge from all entries. This does not apply to the At Home category, from which all entries will be accepted and judged against each other only within the At Home category.
- In order to submit an entry for judging, the participant(s) is (are) required to attend at least one Citizen Scientist Project event (e.g., lecture, beach cleanup, etc.) or other environmentally focused community service activity. This includes At Home participants.
- An entry form must be included with each challenge submitted for judging. It is available for download on the registration page.
- Maximum members of a group is **four**.
- All judging will be anonymous.
- A Community Service Award will be given to the school with the greatest percentage of a school's student population participating in an environmental event other than lectures. For students to get credit for attending an event, they will need to print out a participation form (provided) and have the person in charge of the event sign it. These should then be collected by their teacher and turned in to KBCF when all the challenges are submitted for judging.
- Students must stay within the challenge assigned to their grade level category.
- Absolutely no perishable items should be used in any of the challenges.

## 2016-17 Key Challenge

The Citizen Scientist Project's goal is to secure a future Key Biscayne characterized by the same bounty of natural resources that exist today, thus maintaining the title of "Island Paradise," while the Key Biscayne Citizen Scientist Lab provides a place to record and organize your findings in and around our island and to learn more about our island.

The Citizen Scientist Project's Key Challenge is sponsored by the Key Biscayne Community Foundation, the Village of Key Biscayne, the Fairchild Tropical Botanic Garden, the University of Miami Rosenstiel School of Marine & Atmospheric Science, and the Knight Foundation.

Communication is always welcome. Contact the Key Biscayne Citizen Scientist Project at:

E: [Info@KeyBiscayneFoundation.org](mailto:Info@KeyBiscayneFoundation.org)

W: [www.KeyChallenge.org](http://www.KeyChallenge.org).

T: (305) 361-2770

